



National Aeronautics
and Space Administration

MARCH 18, 1998
NRA 98-OSS-05

RESEARCH ANNOUNCEMENT

JOVIAN SYSTEM DATA ANALYSIS PROGRAM (*JSDAP*)

Notice of Intent Due:
Proposals Due:

APRIL 17, 1998
JUNE 19, 1998

OMB Approval No. 2700-0087

**JOVIAN SYSTEM DATA ANALYSIS PROGRAM
(JSDAP-98)**

NASA Research Announcement
Soliciting Basic Research Proposals
Ending June 19, 1998

NRA 98-OSS-05
Issued: March 18, 1998

Office of Space Science
National Aeronautics and Space Administration
Washington, DC 20546-0001

EXPLORATION OF THE SOLAR SYSTEM:

JOVIAN SYSTEM DATA ANALYSIS PROGRAM (JSDAP)

This NASA Research Announcement (NRA) solicits basic research proposals to conduct scientific investigations of the Jovian system utilizing data obtained by the Orbiter and Atmospheric Probe of the Galileo mission. This NRA solicits proposals that clearly demonstrate relevance to advancing knowledge about the Jovian System and adhere to requirements outlined in Appendix A of this NRA. The complete text of the NRA and its appendices are available through the World Wide Web in several common formats under the selection "Research Opportunities" on the homepage of the NASA Office of Space Science (OSS) at the URL address <<http://www.hq.nasa.gov/office/oss/>>. Proposers who experience difficulty accessing this NRA through the Internet may request assistance from Jovian System Data Analysis Program (JSDAP) by telephone (202) 358-0359 or by E-mail to <rbeebe@hq.nasa.gov>.

Special attention is directed to the opportunity to propose for a Education/Public Outreach (E/PO) activity as an addition to a proposal submitted in response to this NRA. See Appendix A, Section A.3.

Participation in this program is open to all categories of U.S. and non-U.S. organizations including educational institutions, industry, nonprofit institutions, NASA Centers, and other Government agencies. Minority and disadvantaged institutions are particularly encouraged to apply to this NRA.

Funding for selected proposals will be derived from NASA's budget for Fiscal Years (FY) 1998, which began October 1, 1997, and from FY 1999. It is estimated that the NASA funding level for this program will be approximately \$3.0 million annually for FY 1998 and FY 1999. This level of funding is expected to support between 30 and 60 research proposals at an average level of less than \$100K per year. The initial program will utilize the Galileo Probe data and the Orbiter data acquired during the primary mission. A separate and later solicitation is planned to incorporate the data acquired by the Galileo Europa Mission (GEM). Proposals for up to two years will be accepted under this NRA. The Government's obligation to make awards under this NRA is contingent upon the availability of appropriated funds, as well as proposals that the Government determines are acceptable for award. Specific selection criteria are defined in Appendix C.

Appendix A provides specific guidance for this NRA, Appendix B contains the standard NASA guidance for responding to any NRA, and Appendix C provides details about the format and content of proposals in response to this NRA. Note that Appendix C incorporates a number of recently developed formats and/or procedures for proposals.

The following summary information applies to this NRA:

- Program alpha-numeric identifier: NRA 98-OSS-05
- Date of NRA issue : March 18, 1998
- Notice of Intent (NOI) to propose -
 - Due Date: April 17, 1998
 - Address for submission: Electronically submitted through URL
<<http://cass.jsc.nasa.gov/panel>>;
See section C.2 Appendix C for details
- Submission of Proposal -
 - Required number: 15 copies plus signed original.
 - Date Due: June 19, 1998
 - Address for submission : Jovian System Data Analysis Program
Lunar and Planetary Institute
3600 Bay Area Boulevard
Houston, TX 77058
Telephone: (713) 486-2149
- Selecting Official: Director
Research Program Management Division
Office of Space Science
- Announcement of selections: ~ 120 days after proposal due date
- Initiation of funding for new awards: ~ 60 days after proposal selection
- Contact for additional
programmatic information: Dr. Reta Beebe
Research Program Management Division
Office of Space Science
Code SR
National Aeronautics and Space Administration
Washington, DC 20546-0001
Phone: (202) 358-0359
E-mail: Reta.Beebe@hq.nasa.gov

Your interest and cooperation in responding to this Jovian System Data Analysis Program is appreciated.

Carl B. Pilcher
Acting Science Program Director
Solar System Exploration

APPENDICES

- A. Description of Jovian System Data Analysis Program (JSDAP)
- B. General Instructions for Responding to NASA Research Announcements
- C. Specific Guidance for Responding to JSDAP-98 NRA

Description of Jovian System Data Analysis Program

A.1 Objectives and Scope of the Program

The primary objective of the Jovian System Data Analysis Program (JSDAP) is to enhance the scientific return from the Galileo mission by broadening the scientific participation in the analysis and interpretation of the Probe and Orbiter data. This program will support scientific investigations that utilize data obtained during the probe entry and orbiting phases of the primary Galileo mission. Proposals for analysis of Galileo cruise data that do not pertain to the Jovian system should be submitted to the appropriate discipline program for funding in Fiscal Year (FY) 1999 and later.

An investigator may propose to analyze and interpret data from the Galileo Probe instruments and/or data acquired by instruments on board the Galileo Orbiter during the primary mission. Investigations that will utilize data from the Galileo Europa Mission (GEM), which are not in the public domain, should be deferred and submitted during the second phase of the program. A later NASA Research Announcement (NRA) will be issued to provide an additional opportunity for funding of investigations that utilize GEM data.

Proposals that involve refinement of specific data sets and analysis and modeling to interpret the Galileo data and increase knowledge of the physical state and structure and the dynamic processes acting on the satellites, planetary atmosphere or interior, rings, and magnetosphere are solicited. Investigations that include a supplementary component which compares the state of the Jovian system with that of the other outer planets are within the scope of this NRA. Data from other sources may be combined with Galileo Orbiter and /or Probe data to further the understanding of some aspect of the Jovian system. These data could come from other spacecraft, orbiting telescopes, or ground-based observations. The proposed existing data sets from other sources should be precisely described and the manner in which they augment the Galileo data clearly specified. Funds from this program will not be authorized to obtain new observations or to support observing facilities.

Section A.2 in this appendix includes references to descriptions of the Galileo spacecraft and instrumentation (Note: These references should be used as initial references, they do not include final modifications to the spacecraft, health and operability of instruments, or final mission plans.), cites published articles and web sites that indicate the state of preliminary analysis by team members, and provides clarification concerning accessibility of the data sets from the Probe and the primary mission of the Orbiter. It includes locations where data from each instrument on both the Probe and Orbiter are being archived and contacts with resource people at those sites.

Proposers who are responding to this opportunity should note that this NRA includes recent changes in procedures and proposal format. In case of conflict between Appendices B and C, the material in Appendix C takes precedence.

A.2 Availability of Data

In order that the JSDAP can be implemented in a timely manner, the NASA Planetary Data System (PDS) will make the Galileo Orbiter and Probe data available to the science community before the peer review process has been completed.

Galileo investigators are responsible for validating the data and depositing it in the PDS not later than one year after acquisition. PDS is responsible for peer reviewing and formal archiving of Galileo data products. The purpose of the peer review is to determine that the data are complete (e.g., no missing calibration files), suitable for archiving (i.e., of sufficient quality and with enough documentation to be useful and intelligible in the distant future), and that the PDS standards have been followed.

In order to expedite the availability of the Galileo data for use by JSDAP proposers, PDS will make data sets, which are delivered by the Galileo science teams for archive immediately available to the science community via an on-line interface. These data sets may or may not be in PDS compliant format. In addition, some documentation, ancillary files, and other supporting products may not be available. PDS will only make available that data which has been released and delivered to the PDS by the Galileo science teams. Each participating Node of the PDS will post a list of the data that is available at their Web site.

The levels of completion of the data sets are a function of data structure and calibration problems. Although individuals may propose to calibrate data for specific investigations, the PDS will strive to document the level of reliability of individual data sets and continue an ongoing program to validate and archive the data to be utilized in the JSDAP program.

Before submitting a proposal, an investigator is responsible for determining that adequate data have been acquired and are being validated to allow completion of the proposed research. Proposers must identify relevant derived data products that will be generated within this program and, on completion of their analysis, funded investigators must document and deposit these data sets in the PDS. This task should be included in the work plan of proposals involving data analysis.

A.2.1 Archives

A master summary that specifies the current schedule for release of Galileo data to the PDS is available at URL <<http://sdtss10.jpl.nasa.gov/docs/archive/archive.html>>.

Data will be available at individual nodes of the NASA Planetary Data System in two forms:

- Preliminary on-line data. The “work in progress” data sets, which are delivered to the PDS by the Galileo mission science teams, will be made available to the general science users on line.
- Verified-Archived data in PDS-standard CDROM form. Over the period of performance in this NRA the data will be systematically converted to this form.

The PDS, a distributed system with the central node located at the Jet Propulsion Laboratory, has tasked individual discipline nodes to archive specific Galileo data sets. URL addresses of nodes pertinent to this NRA are listed below along with designated individuals to contact for assistance in locating and transferring data sets:

- Central Node: <<http://pds.jpl.nasa.gov>>
- Atmospheres Discipline Node (ATM) :
<<http://atmos.nmsu.edu>>
Lyle Huber; E-mail: lhuber@nmsu.edu,
telephone: (505) 646-1862
- Imaging Node (IMAG) :
<<http://www-pdsimage.jpl.nasa.gov/pds>>
Sue Lavoie; E-mail: sue.lavoie@jpl.nasa.gov,
telephone: (818) 354-5677
- Planetary Plasma Interactions Node (PPI) :
<<http://www.igpp.ucla.edu/ssc/pdsppi/welcome.html>>
Steve Joy; E-mail: sjoy@igpp.ucla.edu,
telephone: (310) 825-3506
- Radio Science Node (RS) :
Richard Simpson, E-mail:
rsimpson@magellan.stanford.edu,
telephone: (415) 723-3525

The following list indicates the PDS node that is receiving and validating the data from the individual instruments:

<u>Radio Science (RS)</u>	ATM/RS
<u>Field and Particle Environment:</u>	
• Dust Detector Subsystem (DDS)	PPI
• Heavy Ion Counter (HIC)	PPI
• Energetic Particle Detector (EPD)	PPI

• Plasma Detector (PLS)	PPI
• Plasma Wave Subsystem (PWS)	PPI
• Magnetometer (MAG)	PPI

Remote Sensing Instruments:

• Photopolarimeter Radiometer (PPR)	ATM
• Near-Infrared Mapping Spectrometer (NIMS)	IMAG
• Solid State Imaging Camera (SSI)	IMAG
• Ultraviolet Spectrometer (EUV/UVS)	ATM

Galileo Probe Instruments:

• Atmospheric Structure Instrument (ASI)	ATM
• Net Flux Radiometer (NFR)	ATM
• Doppler Wind Experiment (DWE)	ATM
• Helium Abundance Detector (HAD)	ATM
• Neutral Mass Spectrometer (NMS)	ATM
• Nephelometer (NEP)	ATM
• Lightning Detector (LDR)	ATM
• Energetic Particles Instrument (EPI)	ATM

A.2.2 References and Sources of General Information

The Galileo Probe Web site is located at the NASA Ames Research Center at URL <http://ccf.arc.nasa.gov/galileo_probe/>, and the Galileo Orbiter web site is at URL <<http://www.jpl.nasa.gov/galileo/>>, which is located at the Jet Propulsion laboratory. A preliminary data acquisition plan is available under “tour” at this site (Note that, although this gives a general description of the tour, it has not been updated to reflect actual acquisitions). The “related pages” references various instrument web pages, some with associated bibliographies of articles produced by the team. Additional assistance in understanding the scope of the imaging data that was obtained by the Orbiter is available at a site generated by the Solid State Imaging (SSI) team that is located at the U.S. Geological Survey at URL <<http://pele.wr.usgs.gov/Galileo>>. The basic descriptions of the Galileo Probe and Orbiter and the associated instrumentation are available in *Space Science Reviews*, **60**, Nos. 1-4 (1992). Initial probe results were published in *Science*, **272**, 837-860 (1996), and preliminary orbiter results were reported in *Science*, **274**, 309-464 (1996).

A.3 Education/Public Outreach Proposals

A.3.1. Scope of Program

The Office of Space Science (OSS) has developed a comprehensive approach for making education at all levels (with a particular emphasis on precollege education) and the

enhancement of public understanding of space science integral parts of all of its missions and research programs. The two key documents that establish the basic policies and guide all OSS Education and Outreach activities are a strategic plan entitled *Partners in Education: A Strategy for Integrating Education and Public Outreach Into NASA's Space Science Programs* (March 1995) and an implementation plan entitled *Implementing the Office of Space Science (OSS) Education/Public Outreach Strategy* (October 1996). Both may be obtained either from the World Wide Web (select *Education and Public Outreach* from the menu on the OSS homepage at <<http://www.hq.nasa.gov/office/oss/>>), or from Dr. Jeffrey Rosendhal, Code S, Office of Space Science, NASA Headquarters, Washington, DC 20546-0001, USA.

In accord with these established OSS policies, proposers to this NRA are strongly encouraged to include an Education/Public Outreach (E/PO) component as part of their scientific research proposal. The proposed E/PO activities should have some degree of intellectual linkage with the objectives of that parent research proposal and/or the science expertise of its Principal Investigator. Up to \$10K per year may be proposed for an E/PO program, although larger budgets will be considered based on the merits of the proposed activity. E/PO proposals will be funded using the available budget of about \$1.5M per year for E/PO support of OSS NRA's.

E/PO proposals will be evaluated (see criteria below) by appropriate scientific, education, and outreach personnel, and the results of these reviews will be provided to the cognizant Program Scientist in time for use in the selection process. The OSS Selecting Official will specifically take into account proposed E/PO tasks and their review ratings when deciding on final selections and funding levels. Results of these E/PO reviews will be used to aid in discriminating between research proposals having otherwise comparable merits. The reviews of E/PO proposals will be conveyed to the proposers as part of their debriefings.

In general, the broad evaluation criteria against which a proposed E/PO activity will be considered are:

- The quality, scope, and realism of the proposed E/PO program;
- The establishment of effective, long-duration partnerships with institutions and/or personnel in the fields of educational and/or public outreach as the basis for and an integral element of the proposed E/PO program;
- The linkage of the proposed E/PO task with existing NASA science or education programs and activities, and its compliance with NASA and OSS guidance;
- The potential of the proposed E/PO activity to have a "multiplier effect" (e.g., prospects for broad dissemination or replication of an E/PO product);
- For proposals dealing with the formal education system, the degree to which the proposed E/PO effort promotes nationally recognized and endorsed education reform efforts and/or reform efforts at the state or local levels;
- The adequacy of plans for evaluating the effectiveness and impact of the proposed education/outreach activity;

- The degree to which the proposed E/PO effort contributes to the training of, involvement in, and broad understanding of science and technology by underserved and/or underutilized groups;
- The prospects for building on, taking advantage of, and leveraging existing and/or ancillary resources beyond those directly requested in the proposal;
- The capability and commitment of the proposer to carry out the proposed E/PO program; and
- The adequacy and realism of the proposed budget (including any additional resources outside those requested from NASA).

Note that originality of the proposed effort is not a criterion. Rather, NASA OSS seeks assurance that the PI is committed to carrying out a meaningful, effective, credible, and appropriate E/PO activity.

A.3.2. Assistance for the Preparation of E/PO Proposals

To directly aid space science personnel in identifying and developing high quality E/PO opportunities, and establishing partnerships between the space science and E/PO communities, NASA OSS has established a national space science education/outreach infrastructure. The purpose of this infrastructure is to provide the coordination, background, linkages, and services needed for a vital national, coordinated, long-term E/PO program. Of particular interest to proposers to this NRA are two elements of this system (which is described in more detail in the OSS education/outreach implementation plan referred to above):

- Four OSS science theme-oriented “E/PO Forums” have been established to help orchestrate and organize in a comprehensive way the education/outreach aspects of OSS space science missions and research programs and provide ready access to relevant E/PO programs and products to both the space science and education communities; and
- Five regional E/PO “Broker/Facilitators” have also been selected to search out and establish high leverage opportunities, arrange alliances between educators and OSS-supported scientists, and help scientists turn results from space science missions and programs into educationally-appropriate activities to be disseminated regionally and nationally.

Prospective proposers are strongly encouraged to make use of these infrastructure resources to help identify suitable E/PO opportunities and arrange appropriate alliances. Points of contact and addresses for all of these E/PO Forums and Broker/Facilitators may be found by opening “Education and Public Outreach” from the menu of the OSS homepage at <http://www.hq.nasa.gov/office/oss/>.

A.3.3. Programmatic Information

The guidelines for the preparation and submission of the E/PO component of a research proposal submitted in response to any program element in this NRA are:

- The body of an E/PO proposal should be restricted to five pages and include the following information: A brief abstract of the proposed program; an expanded description of the objectives and planned activities; a description of the intended involvement of the Principal Investigator of the “parent” research proposal, as well as that of any additional personnel who are proposed to be responsible for the E/PO effort and/or the respective institutional responsibilities if a partnership is proposed; and a brief statement and explanation of the requested E/PO budget.
- The budget for the E/PO activity should be integrated into that for the parent research proposal, which is finally summarized on the specified *Budget Summary* form (see Section 5 of Appendix C). The period of performance of an E/PO activity is restricted to that of the parent proposal.
- The E/PO proposal should be bound (see Section 4.1 of Appendix C) as part of the total proposal in the order specified in Section 4.3 of Appendix C. In addition, the proposal *Cover Page* (see also Section 4.3) must indicate that an E/PO proposal is included as part of the total research proposal.
- E/PO proposals are also to be submitted electronically by uploading its text to the secure Web site at URL <<http://cass.jsc.nasa.gov/panel/>>. This site will provide complete instructions for accomplishing this activity using a wide variety of formats. Proposers without access to the Web or who experience difficulty in using this site may contact the Lunar and Planetary Institute by E-mail at <panel@lpi.jsc.nasa.gov> or by phone at (281) 486-2156 or -2166 for assistance.

Questions about an E/PO program for this NRA may be directed to:

Dr. David Bohlin
Research Program Management Division
Code SR
Office of Space Science
NASA Headquarters
Washington DC 20546-0001
Telephone: (202) 358-0880
E-mail: david.bohlin@hq.nasa.gov

Finally, attention is also called to the Initiative to Develop Education through Astronomy and Space Science (IDEAS) program administered by the Space Telescope Science Institute (STScI) on behalf of OSS. This program, which currently selects proposals yearly, provides awards of up to \$10K (with a few up to \$40K) to enable the participation of space scientists in E/PO activities. Annual solicitations for the IDEAS program are usually released in July with proposals due in October. The IDEAS program

is open to any U.S.-based space scientist regardless of whether or not they hold an award from NASA OSS. The current request for proposals is posted on the World Wide Web at <<http://oposite.stsci.edu/pubinfo/edugroup/ideas.html>>. Inquiries about IDEAS may be directed by E-mail to <IDEAS@stsci.edu> or by mail to:

IDEAS Program
Office of Public Outreach
Space Telescope Science Institute
3700 San Martin Drive
Baltimore, MD 21218.

**INSTRUCTIONS FOR RESPONDING TO
NASA RESEARCH ANNOUNCEMENTS**

Part 1852.235-72

NASA Federal Acquisition Regulations (FAR) Supplement (NFS)
Version 89.90

Accessible at URL

<<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>>,
open Part 1852.228 to 1852.241 from menu.

(JANUARY 1997)

A. General.

(1) Proposals received in response to a NASA Research Announcement (NRA) will be used only for evaluation purposes. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a preaward synopsis published for individual proposals.

(2) A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific request; however, information or material that NASA and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

(3) NRA's contain programmatic information and certain requirements which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applies to responses to all NRA's.

(4) A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded in response to an NRA. NASA will determine the appropriate instrument. Contracts resulting from NRA's are subject to the Federal Acquisition Regulation (FAR) and the NASA FAR Supplement (NFS). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NPG 5800.1).

(5) NASA does not have mandatory forms or formats for responses to NRA's; however, it is requested that proposals conform to the guidelines in these instructions. NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

(6) To be considered for award, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation.

B. NRA-Specific Items. Several proposal submission items appear in the NRA itself: the unique NRA identifier, when to submit proposals, where to send proposals, number of copies required, and sources for more information. Items included in these instructions may be supplemented by the NRA.

C. Proposal Content. The following information is needed to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

(1) *Transmittal Letter or Prefatory Material*.

- (i) The legal name and address of the organization and specific division or campus identification, if part of a larger organization;
- (ii) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;
- (iii) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;
- (iv) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;
- (v) Identification of other organizations that are currently evaluating a proposal for the same efforts;
- (vi) Identification of the NRA, by number and title, to which the proposal is responding;
- (vii) Dollar amount requested, desired starting date, and duration of project;
- (viii) Date of submission; and
- (ix) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization(unless the signature appears on the proposal itself).

(2) *Restriction on Use and Disclosure of Proposal Information.* Information contained in proposals is used for evaluation purposes only. Offerors or quoters should, in order to maximize protection of trade secrets or other information that is confidential or privileged, place the following Notice on the title page of the proposal and specify the information subject to the notice by inserting an appropriate identification in the Notice. In any event, information contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the Notice.

Notice

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract(or other agreement) is awarded on the basis of this proposal, the Government shall have the right to use and disclose this information (data) to the extent provided in the contract(or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

(3) *Abstract.* Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective and the method of approach.

(4) *Project Description.*

(i) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance, relation to the present state of knowledge, and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the plan of work, including the broad design of experiments to be undertaken and a description of experimental methods and procedures. The project description should address the evaluation factors in these instructions and any specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Subcontracting significant portions of a research project is discouraged.

(ii) When it is expected that the effort will require more than one year, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

(5) *Management Approach.* For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described.

(6) *Personnel.* The principal investigator is responsible for supervision of the work and participates in the conduct of the research regardless of whether or not compensated under the award. A short biographical sketch of the principal investigator, a list of principal publications, and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the names and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

(7) *Facilities and Equipment.*

(i) Describe available facilities and major items of equipment especially adapted or suited to the proposed project, and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use. Include evidence of its availability and the cognizant Government points of contact.

(ii) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for research and non research purposes should be explained.

(8) *Proposed Costs.*

(i) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages, fringe benefits, equipment, expendable materials and supplies, services, domestic and foreign travel, ADP expenses, publication or page charges, consultants, subcontracts, other miscellaneous identifiable direct costs, and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research assistants, and technicians and other non-professional personnel). Estimate all staffing data in terms of staff-months or fractions of full-time.

(ii) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired, purpose and estimated number and lengths of trips planned, basis for indirect cost computation(including date of most recent negotiation and cognizant agency), and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases.

(iii) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 1831(and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

(9) *Security*. Proposals should not contain security classified material. If the research requires access to or may generate security classified information, the submitter will be required to comply with Government security regulations.

(10) *Current Support*. For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

(11) *Special Matters*.

(i) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(ii) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

D. Renewal Proposals N/A to the JSDAP NRA

(1) Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. A renewal proposal should not repeat all of the information that was in the original proposal. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which support is desired. A description of any significant findings since the most recent progress report should be included. The renewal proposal should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

(2) NASA may renew an effort either through amendment of an existing contract or by a new award

E. Length. Unless otherwise specified in the NRA, effort should be made to keep proposals as brief as possible, concentrating on substantive material. Few proposals need exceed 15-20 pages. Necessary detailed information, such as reprints, should be included as attachments. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments.

F. Joint Proposals.

(1) Where multiple organizations are involved, the proposal may be submitted by only one of them. It should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

(2) Where a project of a cooperative nature with NASA is contemplated, describe the contributions expected from any participating NASA investigator and agency facilities or equipment which may be required. The proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an agency commitment.

G. Late Proposals. A proposal or modification received after the date or dates specified in an NRA may be considered if doing so is in the best interests of the Government.

H. Withdrawal. Proposals may be withdrawn by the proposer at any time before award. Offerors are requested to notify NASA if the proposal is funded by another organization or of other changed circumstances which dictate termination of evaluation.

I. Evaluation Factors

(1) Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.

(2) Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.

(3) Evaluation of its intrinsic merit includes the consideration of the following factors of equal importance:

(i) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal.

(ii) Offeror's capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposal objectives.

(iii) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel critical in achieving the proposal objectives.

(iv) Overall standing among similar proposals and/or evaluation against the state-of-the-art.

(4) Evaluation of the cost of a proposed effort may include the realism and reasonableness of the proposed cost and available funds.

J. Evaluation Techniques. Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house, others are evaluated by a combination of in-house and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. The final decisions are made by a NASA selecting official. A proposal which is scientifically and programmatically meritorious, but not selected for award during its initial review, may be included in subsequent reviews unless the proposer requests otherwise.

K. Selection for Award.

(1) When a proposal is not selected for award, the proposer will be notified. NASA will explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

(2) When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation. The contracting officer may request certain business data and may forward a model award instrument and other information pertinent to negotiation.

L. Cancellation of NRA. NASA reserves the right to make no awards under this NRA and to cancel this NRA. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation.

(End of provision)

APPENDIX C

Specific Guidance for Responding to the JSDAP-98 NRA

TABLE OF CONTENTS

1. Introduction	C-2
1.1 General Provisions and Policies	C-2
1.2 Types of Proposing Institutions	C-3
1.3 Proposal Personnel	C-4
1.4 Proposal Evaluation	C-5
1.5 Proposal Selection and Implementation	C-6
2. Notice of Intent to Propose	C-6
3. Guidelines for International Participation	C-7
4. Guidelines for Preparation of Proposal	C-8
4.1 Standard Default Formats	C-8
4.2 Checklist For Proposal Preparation	C-9
4.3 Details of Proposal Contents	C-10
- Cover Page/Proposal Summary	C-10
- Summary of Personnel Commitments and Costs	C-12
- Budget Summary	C-12
- Table of Contents	C-12
- Scientific/Technical/Management Section	C-13
- Facilities and Equipment	C-13
- Education/Public Outreach (E/PO) Proposal	C-13
- Curriculum Vitae	C-14
- Current and Pending Support	C-14
- Co-I and Collaborator Commitments	C-14
- Reprints/Preprints	C-15
- Budget Details and Institutional Budget	C-15
5. Forms and Certifications	C-15
- Budget Summary	C-16
- Instructions for Budget Summary	C-17
- Certifications	
- Debarment	C-18
- Lobbying	C-19
- Civil Rights	C-20

C.1 Introduction

C.1.1 General Provisions and Policies

- *Uniqueness of JSDAP NRA.* This NRA is the only one that will be issued by the NASA Office of Space Science (OSS) for funding in Fiscal Year 1998 that solicits investigations for analysis and interpretation of data from the primary Galileo mission.
- *Unrestricted Freedom to Propose to this NRA.* NASA OSS welcomes proposals in response to this NRA from all qualified proposers. Participation in this program is open to all categories of U.S. and non-U.S. organizations, including educational institutions, industry, nonprofit institutions, NASA Centers, and other Government agencies. Historically Black Colleges and Universities (HBCU's), other minority educational institutions, and small businesses and organizations owned and controlled by socially and economically disadvantaged individuals or women are particularly encouraged to apply. In accordance with Federal statutes and NASA policy, no eligible applicant shall be excluded from participation in, denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from NASA on the grounds of race, color, creed, age, sex, national origin, or disability.
- *Opportunity to Propose Educational/Public Outreach Activities.* Educational/Public Outreach (E/PO) activities are now considered vital and integral parts of all NASA space science missions and research programs. Therefore, NASA OSS encourages proposers to this NRA to submit an E/PO proposal as a supplement to their research proposal in accordance with the guidelines given in Appendix A.3.
- *Anticipated Level of Competition for Selection.* Regardless of the budget that are indicated as available in Appendix A, prospective proposers are advised that all NASA/OSS programs have traditionally been extremely competitive. In the last several years, typically as few as one out of five proposals have been selected for funding.
- *Public Access to Data.* As a matter of NASA policy, all data taken in the performance of a NASA research award are considered to be public domain. Within the context of this NRA this will be extended to include derived data products that are generated by individual efforts funded by this NRA. The proposers should identify these products and present a plan for depositing the data in the NASA Planetary Data System (PDS) in PDS-compatible format.
- *NASA-Provided Data and Computational Infrastructure.* OSS provides data and computational infrastructure to support its research community. Information on current science data centers and services can be found on the World Wide Web at <http://www.hq.nasa.gov/office/oss/ssds/>. Any need for high performance computing resources for the proposed research should be explicitly described in the proposal, including the computing system, location, and an estimate of the amount of computing time needed.

NASA high performance computing resources may be made available to successful investigations from facilities at either the Jet Propulsion Laboratory (JPL) and Goddard Space Flight Center (GSFC):

- Resources at the JPL include a Cray J-90 system with a peak speed of 24 GFLOP's and a 256 processor Hewlett-Packard Exemplar parallel computer with a peak speed of 184 GFLOP's. For more information about JPL resources, contact Mr. Larry Eversole at telephone (818) 353-2786, or E-mail at <eversole@galaxy.jpl.nasa.gov>.
- High performance computing resources at GSFC include a Cray J-90 system with a peak speed of 19.2 GFLOP's and a 512 processor Cray T3E parallel computer with a peak speed of 305 GFLOP's. More information is available on the World Wide Web at <<http://nccsinfo.gsfc.nasa.gov/NCCS>> and <<http://nccsinfo.gsfc.nasa.gov/ESS>>.

C.1.2 Types of Proposing Institutions

NASA OSS accepts proposals in response to its NRA's from all types of U.S. and non-U.S. institutions (proposals from non-U.S. institutions should adhere to the provision of Section 4 of this Appendix). As an aid to NASA in deciding on the appropriate funding instrument in the event that the proposal is selected for funding, one of the categories listed below must be indicated on the appropriate line on the *Cover Page* (see Section 4.3 of this Appendix).

Educational Institution -- A university or two- and four-year college (including a U.S. community college) accredited to confer degrees beyond that of the K-12 grade levels (all such institutions are considered by NASA as nonprofit).

Nonprofit, Nonacademic Organization-- A private or Government supported research laboratory, university consortium, museum, observatory, or similar organization that supports advanced research but whose principal charter is not for training of students.

Commercial Organization -- A organization of any size that operates for profit (fee basis) and with appropriate capabilities and interests to conduct basic research in science.

NASA Center -- All NASA field centers or the Jet Propulsion Laboratory.

Other Federal Agency -- A non-NASA, U.S. Federal Executive agency or Federally Funded Research and Development Center (FFRDC) sponsored by a Federal agency.

Unaffiliated U.S. Resident -- Any person residing in the U.S., whether a U.S. citizen or resident alien, who has the capabilities and access to facilities for carrying out the proposed project and who, if selected, agrees to fiscal arrangements that in NASA's opinion ensures responsible management of appropriated Federal funds.

Non-U.S. Organizations -- Institutions outside the U.S. that propose on the basis of a policy of no exchange of funds; consult Section 3 of this Appendix for specific details.

C.1.3 Proposal Personnel

Every organization submitting a proposal in response to this NRA must designate a single *Principal Investigator* (PI) who will be responsible for the quality and direction of the entire proposed investigation and for the use of all awarded funds. NASA does not accept the designation of a “Co-PI.”

NASA strongly encourages proposers to identify only the most critically important personnel to aid in the execution of their proposals. Should such personnel be required, *Co-Investigators* (Co-I’s) may be identified who are critical for the successful completion of an investigation through the contribution of unique expertise and/or capabilities, and who serve under the direction of the PI whether or not they receive compensation directly under the award. A Co-I must have a well-defined role in the investigation that is explicitly defined in the Management section of the proposal (see Section 4.3 below). In addition, for all proposals submitted in response to this NRA, evidence of commitment of a Co-I to participate in the proposed investigation is now required by way of a brief letter from him/her, even if they are from the same institution as that of the PI (see Section 4.3 below).

Note: There are two informal subcategories of Co-I’s that a proposal may identify in its Management section (see Section 4.3 below) as appropriate:

A Co-I may be designated as the “*Science PI*” for those cases where the proposing institution does not permit that individual to formally serve as the PI as defined above (e.g., nontenure faculty, research associates, and/or postdoctoral personnel). In such a case, the Science PI will be understood by NASA to be in charge of the scientific direction of the proposed work, although the formally designated PI is still held responsible for the overall direction of the effort and use of funds.

An “*Institutional PI*” is a Co-I at an institution other than the PI’s that is making a major contribution to the proposal (e.g., a substantial portion of an experimental investigation) and who serves as the point of contact at the Co-I’s institution. (Note: In some cases NASA may elect to provide an award directly to that Co-I institution with the Institutional PI serving as the “PI” for what otherwise would be a subcontract from the proposing PI institution. However, in this case the proposal’s designated PI is still held responsible by NASA for the overall scientific direction of the proposed effort.)

Finally, proposals may also identify “*Collaborators*” who are individuals that are less critical to the overall proposal than a Co-I but who are committed to provide a focused

though unfunded contribution to a specific task. As for Co-I's noted above, proposals submitted in response to this NRA must include a brief letter of commitment from each Collaborator that describes their specific, intended contribution to the investigation.

C.1.4 Proposal Evaluation

Although OSS secures scientific and technical evaluations from appropriately qualified peers of the proposers, proposers are expected to provide sufficient detail to enable evaluation by persons who are knowledgeable of but not necessarily specialists in the proposed research. As a general rule, the evaluation criteria in Appendix B, part (I), as amended below, shall apply to this NRA.

- Unless otherwise specified in the NRA, the principal criteria (in descending order of importance) that apply in evaluation of a proposal are its intrinsic merit, its relevance to NASA's objectives, and its cost.

Evaluation of intrinsic merit includes consideration of the following factors listed in approximate order of decreasing importance:

- The overall scientific and/or technical merit of the proposal and/or unique and innovative methods, approaches, concepts, or advanced technologies demonstrated in the proposal, and the potential impact of the proposed research to its field;
 - The qualifications, capabilities, and experience of the proposing Principal Investigator and all other personnel who are proposing to help achieve the proposal's objectives;
 - The proposing institution's capabilities , related experience, facilities, techniques, or unique contributions of these that are integral factors for achieving the proposal objectives; and
 - The overall standing of the proposal against the known state of the art. Demonstration that the proposers understand the limitations and attributes of the Galileo data sets and that they have clearly delineated the extent to which the proposed research will contribute new knowledge about the Jovian system will be significant in evaluating this aspect.
-
- Relevance to NASA's objectives shall mean relevance of the specific objectives and goals as described in Appendix A in this NRA.
 - Evaluation of the cost of a proposed effort shall include realism and reasonableness of the proposed cost, and the comparison of that cost with available funds.

C.1.5 Proposal Selection and Implementation

Following peer evaluation, the cognizant Discipline Scientist will further review the scientifically and technologically top rated proposals against the programmatic objectives, program balance, and financial resources available. Based on the entirety of these factors, including judgment of the comparison of the scope and importance of the proposed investigation to its cost, the Discipline Scientist then will present a recommendation for selection to the NASA Selecting Official (identified in this NRA's covering summary letter). The Selecting Official will select for funding those proposals deemed worthy as judged against all of the evaluation criteria and for which financial resources are available. The Selecting Official will also decide on the selection of Education/Public Outreach (E/PO) proposals of merit that are associated with those proposals being considered for selection. Note that an E/PO proposal of merit will be used as an additional factor to discriminate between proposals of otherwise equal merit.

Each proposer will be notified by postal or electronic mail of their selection or nonselection and offered a debriefing to explain that decision. Note that NASA reserves the right to offer selection of only a portion of a proposed investigation; in such a case the proposer will be given the opportunity to accept or decline the offer. Those recommended for selection will be informed of the recommended amount of their award and that their organization will be contacted by a NASA Procurement Office to arrange for an appropriate funding instrument (normally a grant or contract). In all cases, awards are made to the proposing institution, not directly to the proposal's PI. Note that no financial commitment on the part of NASA or the Government may be inferred from any communication, even in writing, from the NASA Discipline Scientist or Selecting Official. Only a NASA Procurement Office can make financial commitments, obligations, or awards on behalf of the Agency and authorize the expenditure of funds.

C.2 Notice of Intent to Propose

In order to plan for a timely and efficient peer review process, *Notices of Intent* (NOI's) to propose are requested by the date specified in the covering letter of this NRA. NASA understands that the submission of a NOI is not a commitment to submit a proposal, nor is information contained therein considered binding on the submitter. NOI's are to be submitted electronically by entering the requested information through the World Wide Web site <<http://cass.jsc.nasa.gov/panel>>. Assistance may be obtained at the Lunar and Planetary Institute by E-mail at <panel@lpi.jsc.nasa.gov> or by telephone at (281) 486-2156 or (281) 486-2166. The NOI Web site will request at least the following information:

- reference to this NRA by its alpha-numeric identifier;
- the Principal Investigator's name, physical mailing address, phone number, and E-mail address;
- the name(s) and institution(s) of any Co-Investigator(s) known by the NOI due date;

- a Yes/No indication of the intent to submit an E/PO proposal; a designation of categories to assist in planning
- a descriptive title of the intended investigation; and,
- a brief description of the investigation to be proposed.

A separate NOI must be submitted for each intended proposal.

C.3 Guidelines for International Participation

NASA welcomes proposals from institutions from outside the U.S., as well as proposals from U.S. institutions that include collaboration with Co-Investigators at non-U.S. institutions. In either case, however, investigators working outside the U.S. are not eligible for funding from NASA. Therefore, proposals from non-U.S. institutions should not include a cost plan unless the proposal involves a Co-Investigator working in the U.S., in which case a budget for just that participation must be included. Proposals from non-U.S. institutions, and U.S. proposals that include non-U.S. participation, must be endorsed by the government agency or sponsoring institution in that country from which the non-U.S. participant is proposing. Such endorsement should indicate that the proposal merits careful consideration by NASA, and that if the proposal is selected, sufficient funds will be made available to undertake the activity as proposed.

In addition to sending the specified number of copies of the proposals to the address designated in this NRA, one copy of the proposal, along with a Letter of Endorsement from the sponsoring non-U.S. agency, must be forwarded to:

Ms. Bettye Jones
 NRA 98-OSS-05
 Space Science and Aeronautics Division
 Code IS
 NASA Headquarters
 Washington, DC 20546-0001
 USA

All non-U.S. proposals must be typewritten in English and conform to all other standards for format and content specified in this NRA and will undergo the same evaluation and selection process as those originating in the U.S. All proposals must be received before the established proposal due date; those received after the closing date will be treated in accordance with NASA's standard policy for late proposals (see Appendix B). The sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal to NASA without endorsement if endorsement is not possible before the announced closing date. In such cases, however, NASA's Space Science and Aeronautics Division should be advised when a decision on endorsement can be expected.

Successful and unsuccessful non-U.S. proposers will be contacted directly by the NASA Research Program Management Division concerning the selection or nonselection for their proposals, and copies of these letters will also be sent to the sponsoring organization. Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected, NASA's Space Science and Aeronautics Division will arrange with the non-U.S. sponsoring organization for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring organization will each bear the cost of discharging their respective responsibilities. Depending on the nature and extent of the proposed cooperation, this arrangement will entail a letter of notification by NASA and either an exchange of letters between NASA and the sponsoring organization, or a Memorandum of Understanding (MOU).

C.4 Guidelines for Preparation of Proposals

C.4.1 Standard Default Formats for Proposals

Unless otherwise specified in Appendix A, the standard, default formats for all proposals submitted in response to this NRA are as follows:

- Typewritten English text using an easily read font having no more than ~15 characters per inch on white, 8.5x11 inch paper (or A4 stock for non-U.S. proposals), in single or double column format with at least one inch (2.5 cm) margins, and double-sided printing preferred but not required.
- Bound only with metal staples to facilitate recycling (i.e., no cardboard or plastic covers, or permanent binders), with the original copy bound in a manner that allows easy disassembly should NASA need to make additional copies.
- No fold out pages, colored illustrations, or photographs unless critical for the unique display of important proposal data.
- No material submitted on any type of electronic media nor reference to sites on the World Wide Web for material needed to complete or review the proposal.
- Use only metric and standard astronomical units.
- A limit of 15 pages for the *Scientific/Technical/Management* section (see further below) including references and figures, where each side of a sheet containing text or illustration counts as a page, and any “n-page” fold-out counts as n-pages.

In light of the fact that most related publications are recent, up to three preprints (double-sided preferred) and/or reprints of recently completed papers that are specifically related to the proposed research can be included as appendices to the main proposal.

(Note: Although reprints/preprints may be included, the reviewers are not required to read more than the stated page limit for the *Scientific/Technical/Management* section; therefore, that section must be self consistent and complete.)

C.4.2 Checklist For Proposal Preparation

All proposals are to include the following materials in the order and using the titles as given. Details for each item are given in the same order in Section C.4.3.

PRESUBMISSION ACTIVITIES

- ___ *Notice of Intent to Propose* - electronically submitted to the World Wide Web site <<http://cass.jsc.nasa.gov/panel/>> by the date given in the summary cover letter of this NRA
- ___ *Cover Page/Proposal Summary* - electronically submitted to the World Wide Web site <<http://cass.jsc.nasa.gov/panel/>> and according to the directions below in this section, and in time to procure original signatures on a printed hard copy as required for submission with the copies of the proposal itself by the deadline given in the cover summary letter of this NRA.

CONSTITUENT PARTS (REQUIRED AND OPTIONAL) OF A PROPOSAL, IN ORDER OF ASSEMBLY

	<u>Page Limits</u>
• <u>MAIN PROPOSAL</u>	
___ <i>Cover Page/Proposal Summary</i>	2-3
___ <i>Summary Of Personnel Commitments and Costs</i>	1
___ <i>Budget Summary</i> (one for each year of proposed effort)	1-5, as req'd
___ <i>Table Of Contents</i>	1 (optional)
___ <i>Scientific / Technical / Management Section</i>	≤ 15
___ <i>Facilities And Equipment</i>	≤ 2, as needed
___ <i>Education/Public Outreach (E/PO) Proposal</i>	≤ 5 (optional)
• <u>ANCILLARY INFORMATION:</u>	
___ <i>Curriculum Vitae</i> (optional for Co-I's)	≤ 3 for PI
___ <i>Current And Pending Support</i>	as req'd
___ <i>Letters of Co-I and Collaborator Commitments</i>	as req'd
___ <i>Reprints/Preprints</i> (optional; ≤2 if relevant to proposed effort)	N/A
___ <i>Budget Details</i>	as req'd
___ <i>Institutional Budget</i>	N/A (optional)

SUBMISSION ACTIVITIES

- ___ *Cover Page/Proposal Summary* - print out final and complete version from specified Web site in time to secure the Principal Investigator and Authorizing Institution signatures, and to produce the required number of hard copies to be submitted (originally signed *Cover Page/Proposal Summary* to preface original of proposal).
- ___ Provide for delivery of the specified number of hard copies of the proposal to the correct address by close of the normal business day on the specific Due Date (see the table in the summary cover letter of this NRA).

C.4.3 Details of Proposal Contents

All proposals in response to this OSS NRA should be assembled with the following parts in the order listed. Proposals that omit any of these parts may be returned without review.

For convenience, each of the items below is cross-referenced to the corresponding part of Appendix B of this NRA. Note that several parts of Appendix B are not cited but should also be considered for a complete understanding of all the policies and provisions for proposals solicited through this NRA.

- *Cover Page/Proposal Summary* [Appendix B, C(1) and (3)]

All proposals must be prefaced by an integrated *Cover Page/Proposal Summary* that contains important, required information (see below). This item is produced by first entering the requested information electronically through a World Wide Web site (specified in the cover letter) and then printing out this form by the proposer (note: a point of contact is also identified for any proposer without access to the Web or who experiences difficulty in using the specified site). The printed copy of the electronically submitted form is then used to obtain original signatures of the PI and an official from the proposing institution to submit with the original copy of the proposal. In addition, reproductions of this original *Cover Page/Proposal Summary* are used to preface the required printed copies of the proposal.

Upon accessing the specified Web site, at least the following information for the *Cover Page* will be requested:

- Alpha-numeric identifier of this NRA and full name of NASA Research Announcement (note: these may already be included on the electronic form).
- Name of program to which the proposal is directed.
- Name and full physical, institutional mailing address of the proposing Principal Investigator, telephone and facsimile numbers, and E-mail address.

- An open block for the PI signature and date on the printed hard copy.
- Full, descriptive title of proposed investigation.
- NASA Grant or Contract Number of any current NASA award that the PI holds that is a logical predecessor of the newly proposed work.
- Names, institutional affiliations, and E-mail addresses of all Co-Investigators (note: all listed Co-I's must also be functionally identified in the proposal).
- The physical mailing address, telephone number, and E-mail address of the office of sponsored programs at the proposing institution.
- Institutional endorsement, including the name and title of the Authorizing Official, name of proposing institution, and, for the hard copy submitted with proposal, a signature and date.
- Designation of the type of institution per the definitions in Section 1.2 above.
- A "Yes/No" indication whether an E/PO proposal is also submitted.
- The proposed costs both by year and for the total proposed period of performance.

A block of space (about one page in length) will be provided in the electronic *Cover Page/Proposal Summary* form for a self-contained *Proposal Summary* of the proposed research activity. The *Summary* is intended to provide background and perspective to the interested reader and, therefore, should include the following key information:

- A description of the key, central objectives of the proposed research in terms sufficient for a nonspecialist not familiar with the document to grasp its essence and a statement of methods proposed to accomplish those proposed objectives;
- The perceived significance of the proposed work to NASA OSS interests;
- If the proposed research is continuation of work performed under a previous NASA award, a statement of accomplishments and citations to key published or in-press articles derived from that award; and
- If the proposal contains a Education/Public Outreach proposal, a two or three sentence summary of the intended activity.

NOTE: NASA intends to publish the proposal title, the PI name and institution, and the *Proposal Summary* of every selected investigation in a public data base. Therefore, the *Summary* should not include proprietary information that would preclude its unrestricted release (see Appendix B, A(2) and C(2)).

Changes (such as whiteout or strikethrough) to the printed *Cover Page/Proposal Summary* are not permitted. Any needed changes to the information submitted electronically may only be made by editing the electronic submission by one of two ways, depending on the instructions of the Web page of the organization receiving the proposal: Either (i) directly on the Web by using the "Edit" option and the Proposal Number that was assigned when this form was first electronically submitted; or (ii) directly on the Web by using a unique password assigned along with the Confirmation Number when this form was first electronically submitted. In either case, after the final

Cover Page/Proposal Summary has been electronically submitted, the proposer then prints the correct and final version for securing the necessary signatures.

Note two special features of this integrated *Cover Page/Proposal Summary*: (i) unlike previous OSS NRA's, the authorizing institutional signature also certifies that the proposing institution has read and is in compliance with the three required certifications printed in full at the end of this Appendix, and, therefore, it is not necessary to separately submit these certifications with the proposal; and (ii) electronic submission of only a *Cover Page/Proposal Summary* does not satisfy the deadline for proposal submission. The required number of copies of the proposal, one with original signatures, must be received at the indicated address by the due date.

- *Summary of Personnel Commitments and Costs*

The proposal must contain a one page summary that shows, in simple tabular form, the intended work commitment for the PI and every Co-I of their work effort for the proposed investigation both in time (rounded to the nearest 0.1 Work Year) and salary (rounded to the nearest \$1K) for each year of the proposed period of performance.

- *Budget Summary* [Appendix B, C(8)]

Proposals must contain a *Budget Summary* (form given at end of this Appendix) for each year of the proposed effort filled out in accordance with the *Instructions for Budget Summary* on the page that follows it. Special attention is directed to the discussion of item 2.c. *Equipment* on the *Instructions* sheet regarding the proposed purchase of personal computers and/or commercially available software, both of which are considered to be “general purpose equipment.” In the event that a proposal is selected for award, failure to adequately address the provisions of the instructions for item 2.c will require that the NASA awards office contact the proposing institution for the required information, which may delay the award until the purchase is either justified as a direct charge for general purpose equipment or is rebudgeted as an indirect expense.

- *Table of Contents*

A one-page *Table of Contents* is optional but desirable. It does not count against the page limit for the *Scientific/Technical/Management. Section*

- *Scientific/Technical/Management. Section* [Appendix B, C(4), (5), and (6)]

This *Section* is the heart of a proposal and should cover the following topics in the order given:

- The objectives and expected significance of the proposed research, including a complete description of any instruments or hardware proposed to be built in order to carry out the research (note: see also the next subsection for treatment of critical equipment needed for carrying out the proposed research);

- The technical approach and methodology to be employed in conducting the proposed research, including any special facilities of the proposing institution(s) and/or capabilities of the proposer(s) for carrying out the work;
- The perceived impact of the proposed work to the state of knowledge in the field and if the proposal is a direct extension of an existing OSS award or research funded by the Galileo Mission, how the proposed work is expected to build on or otherwise extend previous accomplishments;
- The relevance of the proposed work to the past, present, and/or future NASA OSS programs and interests or to the specific objectives given in this NRA;
- An outline of the general plan of work, including anticipated key milestones for accomplishments and the management structure for the personnel involved; and
- A statement of the expected contribution by the PI and each Co-I identified in the proposal, whether or not they derive support from the proposed budget.

The *Scientific/Technical/Management Section* should contain references to citations in the main text and may contain illustrations that amplify and demonstrate key points in the main text of the proposal (including milestone schedules, if appropriate). Any illustrations should be of publication quality, sized for easy viewing, and have self-contained captions that do not uniquely contain critical proposal information.

- *Facilities and Equipment* [Appendix B, C(7)]

If appropriate, and not to exceed two pages in length, this section should describe any facilities (including any U.S. Government owned facilities) and/or major equipment critical to carrying out the proposed project that is already available or would need to be purchased in order to carry out the proposed investigation. In the latter case, these costs should be entered in the required proposal *Budget Summaries* and also should be described in accompanying budget details.

- *Education and Public Outreach (E/PO) Proposal* (optional)[Appendix A, 3]

Proposals for E/PO efforts are encouraged as an addition to proposals submitted in response to this NRA. An E/PO Co-Investigator may be identified for this portion of the proposal who will carry the prime responsibility for completing the E/PO work (e.g., an appropriately qualified colleague from the PI institution, or some nearby educational institution such as a public school district, museum, planetarium, etc.) Note that a separate NASA OSS budget exists to fund such efforts, so the award of an E/PO grant will be in addition to the budget for the proposed “parent” research investigation by itself. Appendix A.3 contains further information about the criteria and submission procedures for this program.

- *Curriculum Vitae* [Appendix B, C(6)]

The PI must include a *Curriculum Vitae*, limited to three pages, that includes his/her professional experiences, positions, and a bibliography of publications relevant to the proposal. The proposal may also include a one page *Vitae* for each key Co-I.

- *Current and Pending Support* [Appendix B, C(10)]

Information must be provided for all ongoing and pending projects and proposals that involve the proposing PI and any Co-I's who are expected to perform a major share of the proposed work. For each such individual, provide the following information,

- Project Title;
- Sponsoring agency or institution (including point of contact);
- Proposed period of performance and budget; and
- Commitment by PI in terms of Full Time Equivalent (FTE) Work Year, for each of the two categories of support awards:
 - A. Current Support (for any of the period that overlaps with the current proposal); and
 - B. Pending Support (including the current proposal).

In addition, provide the name of any other institution, including point of contact with telephone number, to which the proposal submitted to this NRA, or any part thereof, has been or will be submitted for consideration of funding. Note that for pending research, it is the PI's responsibility to notify the relevant Discipline Scientist immediately of any successful proposals that are awarded anytime after the proposal submission date until the time of selections.

- *Co-I and Collaborator Commitments*

A new feature of this OSS NRA is the requirement that every Co-I and Collaborator formally identified as a participant in the proposal must submit a brief, signed letter of commitment that acknowledges his/her participation in the named investigation. In the case of more than one Co-I and/or Collaborator, a single but multiply-signed letter is both permissible and preferred to minimize proposal size. In any case, each letter should be addressed to the PI, may be a facsimile, and is required even if the Co-I or Collaborator is from the PI's own institution. The text of this letter should contain the following, or appropriately similar, language:

“I(we) acknowledge that I(we) am(are) identified by name as Co-Investigator(s) [or Collaborator(s)] to the investigation entitled “*name of proposal*” that is submitted by “*name of Principal Investigator*” to the JSDAP-98 NASA Research Announcement, and that I(we) intend to carry out all responsibilities identified for me(us) in this proposal.”

- *Reprints/Preprints*

Up to three reprints and/or preprints (submitted for peer-reviewed publication) that are considered critically important to the understanding and/or background of the proposal may be appended. Note that although reprints/preprints may be included, reviewers will be asked to base their judgment of the merits of the proposals only on the *Scientific/Technical/Management Section* including its references and illustrations. Therefore, that section must be as self-consistent and complete as possible.

- *Budget Details and Institutional Budget*

In addition to the *Budget Summaries* as discussed above and in accordance with the *Instructions for Budget Summary* given in Section 6 of this Appendix, the proposing institution must append at the end of the proposal sufficient details to allow a full understanding of the budget. In addition, the proposing institution may append their proposed budget in the format of their choice and without any limit on the page count. Note that by 2000, NASA is expected to be operating on the basis of full cost accounting; in the interim period, NASA Center proposals should use the accounting practices that are specified at the time proposals are due.

C.5 Forms and Certifications

The following pages contain the required *Budget Summary* form, the *Instructions for Budget Summary*, and, for reference only, copies of the three currently required *Certifications*. Regarding these materials: A reasonable facsimile of this *Budget Summary* form may be generated by the proposer for submission so long as it contains all the indicated information and lines; and the signature of the Authorizing Institutional Representative on the printed copy of the *Cover Page* submitted with the proposal now verifies that the proposing organization complies with these *Certifications*; therefore, these *Certifications* do not have to be independently signed and submitted as in previous OSS NRA's.

BUDGET SUMMARY

For period from _____ to _____

- Provide a complete Budget Summary for year one and separate estimated for each subsequent year.
- Enter the proposed estimated costs in Column A (Columns B & C for NASA use only).
- Provide as attachments detailed computations of all estimates in each cost category with narratives as required to fully explain each proposed cost. See *Instructions For Budget Summary* on following page for details.

	NASA USE ONLY		
	A	B	C
1. <u>Direct Labor</u> (salaries, wages, and fringe benefits)	_____	_____	_____
2. <u>Other Direct Costs:</u>			
a. Subcontracts	_____	_____	_____
b. Consultants	_____	_____	_____
c. Equipment	_____	_____	_____
d. Supplies	_____	_____	_____
e. Travel	_____	_____	_____
f. Other	_____	_____	_____
3. <u>Facilities and Administrative Costs</u>	_____	_____	_____
4. <u>Other Applicable Costs:</u>	_____	_____	_____
5. <u>SUBTOTAL--Estimated Costs</u>	_____	_____	_____
6. <u>Less Proposed Cost Sharing</u> (if any)	_____	_____	_____
7. <u>Carryover Funds</u> (if any)			
a. Anticipated amount : _____			
b. Amount used to reduce budget	_____	_____	_____
8. <u>Total Estimated Costs</u>	_____	_____	XXXXXX
9. APPROVED BUDGET	XXXXXX	XXXXXXX	_____

INSTRUCTIONS FOR BUDGET SUMMARY

1. **Direct Labor (salaries, wages, and fringe benefits):** Attachments should list the number and titles of personnel, amounts of time to be devoted to the grant, and rates of pay.
2. **Other Direct Costs:**
 - a. **Subcontracts:** Attachments should describe the work to be subcontracted, estimated amount, recipient (if known), and the reason for subcontracting.
 - b. **Consultants:** Identify consultants to be used, why they are necessary, the time they will spend on the project, and rates of pay (not to exceed the equivalent of the daily rate for Level IV of the Executive Schedule, exclusive of expenses and indirect costs).
 - c. **Equipment:** List separately. Explain the need for items costing more than \$5,000. Describe basis for estimated cost. General purpose equipment is not allowable as a direct cost unless specifically approved by the NASA Grant Officer. Any equipment purchase requested to be made as a direct charge under this award must include the equipment description, how it will be used in the conduct of the basic research proposed and why it cannot be purchased with indirect funds.
 - d. **Supplies:** Provide general categories of needed supplies, the method of acquisition, and the estimated cost.
 - e. **Travel:** Describe the purpose of the proposed travel in relation to the grant and provide the basis of estimate, including information on destination and number of travelers where known.
 - f. **Other:** Enter the total of direct costs not covered by 2a through 2e. Attach an itemized list explaining the need for each item and the basis for the estimate.
3. **Facilities and Administrative (F&A) Costs:** Identify F&A cost rate(s) and base(s) as approved by the cognizant Federal agency, including the effective period of the rate. Provide the name, address, and telephone number of the Federal agency official having cognizance. If unapproved rates are used, explain why, and include the computational basis for the indirect expense pool and corresponding allocation base for each rate.
4. **Other Applicable Costs:** Enter total explaining the need for each item.
5. **Subtotal-Estimated Costs:** Enter the sum of items 1 through 4.
6. **Less Proposed Cost Sharing (if any):** Enter any amount proposed. If cost sharing is based on specific cost items, identify each item and amount in an attachment.
7. **Carryover Funds (if any):** Enter the dollar amount of any funds expected to be available for carryover from the prior budget period. Identify how the funds will be used if they are not used to reduce the budget. NASA officials will decide whether to use all or part of the anticipated carryover to reduce the budget (not applicable to 2nd-year and subsequent-year budgets submitted for award of a multiple year award).
8. **Total Estimated Costs:** Enter the total after subtracting items 6 and 7b from item 5.

**Certification Regarding Debarment, Suspension, and Other Responsibility
Matters Primary Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
 - (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Certification Regarding Lobbying

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000 for each such failure.

**Certification of Compliance with the NASA Regulations Pursuant to
Nondiscrimination in Federally Assisted Programs**

The (*Institution, corporation, firm, or other organization on whose behalf this assurance is signed, hereinafter called "Applicant "*) hereby agrees that it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352), Title IX of the Education Amendments of 1962 (20 U.S.C. 1680 et seq.), Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and the Age Discrimination Act of 1975 (42 U.S.C. 16101 et seq), and all requirements imposed by or pursuant to the Regulation of the National Aeronautics and Space Administration (14 CFR Part 1250) (hereinafter called "NASA") issued pursuant to these laws, to the end that in accordance with these laws and regulations, no person in the United States shall, on the basis of race, color, national origin, sex, handicapped condition, or age be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives federal financial assistance from NASA; and hereby give assurance that it will immediately take any measure necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of federal financial assistance extended to the Applicant by NASA, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which the federal financial assistance is extended to it by NASA.

This assurance is given in consideration of and for the purpose of obtaining any and all federal grants, loans, contracts, property, discounts, or other federal financial assistance extended after the date hereof to the Applicant by NASA, including installment payments after such date on account of applications for federal financial assistance which were approved before such date. The Applicant recognized and agrees that such federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign on behalf of the Applicant.